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**ON THE CYNIPIDOUS GALLS OF FLORIDA,
with descriptions of new species and Synopses of the
described species of North America.**

BY WILLIAM H. ASHMEAD.

In the following pages studies on the cynipidous galls of Florida are continued, and synopses of all those described from America north of Mexico are given.

The tables, which will greatly assist the student in identifying the now numerous described species, have been shaped somewhat in accordance with the "Synopsis of N. A. oak galls" as published in 1865, by Baron Osten Sacken, in the Proceedings of the Entomological Society of Philadelphia. There, about fifty species are tabulated; here, one hundred and forty-three.

It will also be observed that the generic position of many of the species in the tables does not conform with my "Catalogue of the North American Cynipidæ" published in 1885. In explanation of this discrepancy I would say that since then I have secured most of the described species of the N. A. Cynipidæ, many of which were not then in my collection, and their present position is assigned them after a very careful study, and with a knowledge of the generic differences not attained at that time; they will be found now placed in their proper genera, excepting possibly a few species which I have not yet seen.

It is the intention of the writer to publish, early in the spring, a monograph of the North American Cynipidæ, in which will be given tables for determining the genera and species, with full descriptions and illustrations of *all* the genera and generic characters and many of the galls. The work is already well under way, and to make the monograph as complete as possible and to fill up my tables of the species, I would respectfully ask of those interested, their assistance in the way of specimens to be retained or their loan for study. All specimens sent me will be well cared for, accurately determined and returned at the earliest possible moment after being studied. I am particularly anxious for specimens in the subfamilies *Ibaliinæ*, *Alotriinæ* and *Figitinae*.

In this memoir (which does not by any means exhaust my material) I describe in the subfamily *Cynipidæ* three new genera: *Solenozopheria*, *Eumayria* and *Bussettia*; and in the subfamily *Figitineæ* several new genera. I have separated the old genus *Eucoila* Westw., from the *Figitineæ* as a subfamily (*Eucoilinæ*) with several well-defined genera, and also describe new species in numerous European genera not before recognized in the North American fauna.

The genus *Solenozopheria* is erected to contain a cynipid making a reniform, pithy gall on huckleberry (*Vaccinium*) which cannot be placed in any of the known genera. Indeed, this is the first instance on record where a cynipidous gall has been found on a plant in the Heath Family (*Ericaceæ*), for in America, cynipidous galls have been found only on the Oak Family (*Cupuliferæ*), genus *Quercus*; Rose Family (*Rosaceæ*), genera *Potentilla*, *Rubus* and *Rosa*; Composite Family (*Compositæ*), genus *Lygodesmia*; Mint Family (*Labiataæ*), genus *Nepeta*; and Night-shade Family (*Solanaceæ*) genus *Solanum*.

In Europe, cynipidous galls have been found in all the above families but one, *Solanaceæ*; and in all the genera but one, *Lygodesmia*; besides in the following additional families and genera: Maple Family (*Aceraceæ*), genus *Acer*; Poppy Family (*Papaveraceæ*), genus *Papaver*; and Grass Family (*Gramineæ*), genus *Triticum*; on additional genera in Mint Family (*Labiataæ*), genera *Glechoma* and *Salvia*; in Rose Family (*Rosaceæ*), genus *Sorbus*; in Composite Family (*Compositæ*), genera *Hieracium*, *Scorzonera* and *Centaurea*. From South America, a cynipid causing a gall on *Acacia farnesiana*, Dr. Mayr erected his genus *Eschatocerus*; and from Africa, in the Cashew Family (*Anacardiaceæ*), genus *Rhus*, his genus *Rhoophilus*.

The above constitutes a complete list of the known food plants of the *Cynipidæ*; and the discovery of a cynipidous gall on a new family of plants, belonging to a new genus, is doubly interesting.

The Synopses following are:

- 1.—A Synopsis of the North American Cynipidous Oak Galls.
- 2.—A Synopsis of the North American Cynipidous Rose Galls.
- 3.—A Synopsis of the North American Cynipidous Bramble Galls.
- 4.—A Synopsis of the North American Miscellaneous Cynipidous Galls.

1.—A Synopsis of the North American Cynipidous Oak Galls.

Galls on the leaves	Division I.
Galls on branches, twigs and blossoms	II.
Galls on the roots	III.

Div. I.—*Galls on the leaves.*

A.—Galls not intimately connected with the substance of the leaf, generally fastened by a small portion of their surface and which can be removed without carrying a portion of the leaf with them.

a.—Globular galls with a kernel in the centre kept in position by a softer substance, spongy, fibrous or succulent; or by filaments radiating from it to the shell; all monothalamous.

†.—Kernel kept in position by a dry, spongy substance.

Shell thick . *Amphibolips spongifica* O. S. (Q. tinctoria).

Shell thin . *Amphibolips confluens* Harris (Q. rubra).

Surface glossy . *Amphibolips coccineæ* O. S. (Q. coccinea).

Surface spiny . *Amphibolips spinosa* Ashm. (Q. laurifolia).

††.—Kernel kept in position by delicate, radiating filaments.

Large, shell thin; surface glossy . *Amphibolips inanis* O. S. (Q. rubra, Q. coccinea).

Large, shell thin; surface mottled . *Holcaspis centricola* O. S. (Q. obtusiloba).

Small, smooth, brown . *Dryophanta polita* Bass. (Q. obtusiloba); *Andricus bella* Bass. (unknown oak).

Small, smooth, yellow . *Andricus femoratus* Ashm. (Q. laurifolia).

†††.—Kernel kept in position by a soft, succulent substance; galls resembling green grapes . *Amphibolips sculpta* Bass. (Q. rubra, Q. tinctoria); *A. racemaria* Ashm. (Q. laurifolia).

††††.—Kernel surrounded by a dense, cellular substance.

Galls generally in clusters; shell smooth . *Andricus virens* Ashm. (Q. virens).

Bell shaped . *Acraspis vaccinii* Ashm. (Q. obtusiloba).

Small, pubescent . *Cynips? decidua* Bass. (Q. rubra).

Minute, pubescent . *Dryophanta ignota* (Q. bicolor).

aa.—Hard, globular, or irregularly rounded galls, without a distinct kernel; one, two or more celled, the surface smooth or netted or fissured like a strawberry.

One celled, without spines . *Biorhiza hirta* Bass. (Q. montana); *Acraspis pezamachoides* O. S. (Q. alba).

One celled, with spines . *Cynips echinus* O. S. (Q. agrifolia).

Two or more celled, with spines . *Acraspis erinacei* Walsh.
(Q. alba); *A. echini* Ashm. (Q. bicolor).

One celled, surface not netted, pubescent . *Dryophanta carolina*
Ashm. (Q. alba).

aaa.—Globular galls without a distinct kernel . *Andricus utriculus* Bass. (Q. alba).

Minute, jumping gall . *Neuroterus saltatorius* Edw. (Q. undulatus).

Small, pubescent, gall . *Biorhiza mellea* Ashm. (Q. obtusiloba).

b.—Spindle-shaped galls, on a pedicel . *Andricus fusiformis* O. S. (Q. alba); *A. chinquapin* Fitch (Q. chinquapin, Q. bicolor); *Amphibolips cælebs* O. S. (Q. rubra).

c.—Wooly or hairy galls; spherical, semispherical, wartlike, or irregular, generally along the veins.

Semispherical on mid-vein, covering wheat-like kernels . *Andricus flocci* Walsh (Q. alba); *A. Pattoni* Bass. (Q. obtusiloba).

Kernels irregular . *Andricus lanigerus* Ashm. (Q. virens); *A. nubila* Bass. (oak unknown); *Bassetia tenuicornis* Bass. (oak unknown).

Kernel, a round, flattened disk with a nipple . *Neuroterus laurifoliae* Ashm. (Q. laurifolia).

Small, wartlike, hairy galls . *Neuroterus verrucarum* O. S. (Q. obtusiloba); *N. minutissimus* Ashm. (Q. virens); *N. floccosus* Bass. (Q. bicolor).

Spherical . *Acraspis lanæglobuli* Ashm. (Q. bicolor); *Andricus infuscatus* Ashm. (Q. catesbæi).

d.—Tubular galls with or without spines.

With spines . *Andricus tubicola* O. S. (Q. obtusiloba).

AA.—Galls intimately connected with the substance of the leaf, so that they cannot be taken off without carrying a portion of the leaf with them.

a.—Globular, hollow, monothalamous galls.

†.—Kernel in the centre kept in position by filaments radiating from it to the shell . *Amphibolips nubilipennis* Harris (Q. rubra); *Andricus? singularis* Bass. (Q. rubra); *A. Osten Sackenii* Bass. (Q. ilicifolia, Q. coccinea).

††.—Kernal cocoon-like, rolling freely about within the cavity
Galls globular, projecting on both sides of the leaf . *Dryophanta palustris* O. S. (Q. palustris); *D. laurifoliae* Ashm. (Q. laurifolia); *D. aquaticæ* Ashm. (Q. aquatica); *D. quercifolæ* Ashm. (Q. catesbæi).

Galls semiglobular, not projecting above the upper surface of leaf . *Dryophanta notha* O. S. (Q. palustris); *D. confusa* Ashm. (Q. laurifolia); *D. cinereæ* Ashm. (Q. cinerea).

b.—Swellings or expansions of the leaf ribs; mostly polythalamous.

†.—Juicy, irregular swellings of the blade of the leaf; of a cellular, pithy structure when dry . **Neuroterus majalis* Bass. (Q. alba, Q. prinus); **N. irregularis* O. S. (Q. obtusiloba).

††.—Cellular swellings of the leaf, usually along the principal ribs; they contain numerous seed-like kernels . *Andricus piger* Bass. (Q. tinctoria); *Callirhytis tumifica* O. S. (Q. tinctoria); *C. modesta* O. S. (A. rubra); *C. nigra* O. S. (Q. nigra); *C. cellæ* Ashm. (Q. laurifolia).

†††.—Non-juicy expansions of the leaf, with two or three seed-like kernels in the centre kept in position by filaments or a cellular substance . *Callirhytis futilis* O. S. (Q. alba); *C. papillatus* O. S. (Q. prinus, Q. prinoides).

Small, papillose, cone-like galls in clusters . *Dryophanta papula* Bass. (Q. rubra, Q. tinctoria).

††††.—Globular, hard expansions of the leaf, at the basis of the leaf, or on the principal leaf-rib, part appearing above the leaf cone-shaped; below rounded . *Andricus quinqueseptum* Ashm. (Q. obtusiloba); *A. petiolicola* Bass. (Q. montana); *A. parvifoliae* Ashm. (Q. parvifolia).

†††††.—Hard, prone circular galls sessile on the under surface of the leaf not appearing on the upper surface *Andricus rugosus* Ashm. (Q. laurifolia); *Cynips? cicatricula* Bass. (Q. alba).

* These two species are probably identical; *N. irregularis* O. S. having the priority. It will form the type of a new genus *Dolichostrophus* m.

Div. II.—*Galls on the branches, twigs and blossoms.*

A.—Galls of a different substance than the limb and which can be taken off without carrying a portion of the limb with them.

a.—Globular galls, with a kernel in the centre kept in position by a softer substance, spongy, fibrous or succulent; or by filaments radiating from it to the cell; all monothalamous.

†.—Kernel kept in position by a dry, spongy substance. *Amphibolips cinerea* Ashm. (*Q. cinerea*).

††.—Kernel kept in position by delicate radiating filaments. Attenuated and pointed at tip. *Amphibolips citriformis* Ashm. (*Q. laurifolia*).

Rounded, not pointed at tip. *Amphibolips melanocera* Ashm. (*Q. aquatica*).

†††.—Kernel surrounded by a hard cellular or woody substance; sometimes but slightly imbedded in the surrounding substance.

a.—Monothalamous. *Holcaspis mamma* Walsh (*Q. macrocarpa*); *A. fuliginosa* Ashm. (*Q. laurifolia*); *Andricus cinerosus* Bass. (*Q. virens*); *Callirhytis agrifoliae* Bass. (*Q. agrifolia*); *Cynips?* *juglans* O. S. (*Q. prinus*); *Holcaspis globulus* Fitch (*Q. alba*); *H. omnivora* Ashm. (*Q. obtusiloba*, *Q. parvifolia*); *H. rugosa* Bass. (*Q. prinoides*, *Q. prinus*, *Q. bicolor*).

aa.—Polythalamous; galls very large, cellular structure. *Andricus pomiformis* Bass. (*Q. agrifolia*).

Hard, woody structure. *Callirhytis Suttoni* Bass. (oak unknown).

††††.—Kernel surrounded by juicy substance; gall issuing from the side of an acorn. *Amphibolips prunus* Walsh (*Q. ———*).

b.—Bud galls; galls issuing generally from a bud axil, hidden and enclosed in a bud, or surrounded by bud scales, or deformed lanceolate leaflets.

†.—Hard, conical galls; the tips sometimes curved.

Occurring separately or singly. *Andricus coniferus* Ashm. (*Q. laurifolia*).

Occurring several together, often coalescing. *Andricus ventricosus* Bass. (*Q. ilicifolia*).

††.—Oblong, ovate galls in clusters and ribbed like a melon ;
monothalamous.

Divided lengthwise into partitions . *Andricus formosus*
Bass. (*Q. rubra*, *Q. ilicifolia*) ; *A. capsualus* Ashm.
(*Q. cinerea*, *Q. catesbæi*).

Without partitions, jumping . *Andricus saltatus* Ashm.
(*Q. catesbæi*, *Q. cinerea*).

†††.—Galls in the buds . *Andricus calycicola* Ashm. (*Q.*
laurifolia) ; *Neuroterus?* *vesicula* Bass. (*Q. alba*) ; *N.*
affinis Bass. (*Q. prinoides*) ; *N. minutus* Bass. (*Q.*
alba) ; *Dryophanta gemula* Bass. (*Q. prinoides*).

Suppositious bud gall . *Holcaspis?* *corrugis* Bass. (*Q.*
prinoides).

††††.—Leafy bud galls ; clusters of small, narrow, deformed
leaflets, issuing from a bud axil and surrounding
one or more kernels.

a.—Monothalamous.

Gall very large ; kernel smooth . *Andricus frondosa*
Bass. (*Q. alba*).

Galls very large ; kernel rugose . *Andricus foliatus*
Ashm. (*Q. virens*).

Gall small, kernel smooth . *Andricus stropus* Ashm.
(*Q. obtusiloba*) ; *A. cinnamomeus* Ashm. (*Q. parvi-*
folia).

aa.—Polythalamous ; kernels very small, smooth . *An-*
dricus topiarius Ashm. (*Q. obtusiloba*).

c.—Galls on the blossoms.

Small, globular, wooly gall, containing numerous seed-like
kernels . *Andricus Turnerii* Ashm. (*Q. aquatica*).

A minute, seed-like kernel occurring singly on aments . *An-*
dricus blastophagus Ashm. (*Q. cinerea*) ; *Dryophanta*
gemula Bass. (*Q. prinoides*).

d.—Wooly galls ; globular or irregular, containing numerous
seed-like kernels inside . *Callirhytis seminator*
Harris (*Q. alba*, *Q. bicolor*, *Q. prinus*) ; *C. operator*
O. S. (*Q. nigra*, *Q. ilicifolia*, *Q. palustris*).

E.—Fig galls ; irregular and hard, or soft, thin shelled, bladder-
like galls crowded together around a limb, so press-
ing and crowding upon each other as to resemble
pressed figs.

e.—Thin shelled, resembling pressed figs . *Biorhiza forticornis* Walsh (Q. alba).

More rounded . *Holcaspis ficula* Bass. (Q. macrocarpa, Q. obtusiloba, Q. parvifolia).

Pine-cone shaped . *Cynips strobilana* O. S. (Q. bicolor).

ee.—Thick shelled, hard . *Holcaspis ficigera* Ashm. (Q. virens).

Rounded, not compressing each other . *Holcaspis succinipes* Ashm. (Q. virens).

AA.—Galls comprising swellings of the branches and twigs and which cannot be removed without carrying a portion of the branch or twig with them.

†.—Terminal or subterminal swellings of the limb; either of a hard woody structure or of a soft cellular substance.

a.—Monothalamous; of a hard, woody structure . *Callirhytis clavula* Bass.

Syn. *C. arbos* Fitch, *C. tuber* Fitch (Q. alba); *Neuroterus phellos* O. S. (Q. phellos); *C. similis* Bass. (Q. ilicifolia); *C. aquaticæ* Ashm. (Q. aquatica).

aa.—Polythalamous; of a soft, cellular substance . *Neuroterus batatus* Bass.—Syn. *Cynips batata* Fitch. (Q. alba).

††.—Swellings in the middle of the branch; all polythalamous.

b.—Of a soft, cellular structure . *Andricus batatoides* Ashm. (Q. virens); *Neuroterus noxiosa* Bass. (Q. bicolor).

bb.—Of a hard, woody structure . *Andricus Coxii* Bass. (Q. agrifolia); *A. ? floridanus* Ashm. (Q. parvifolia); *Callirhytis punctata* Bass. (Q. rubra); *C. podagræ* Walsh (Q. nigra); *C. scitula* Bass. (Q. tinctoria); *C. californica* Bass. (Q. Hindsii); *Neuroterus Rileyi* Bass. (Q. castanea).

bbb.—With spines or fusiform tubes . *Callirhytis cornigera* O. S. (Q. palustris); *Andricus clavigerus* Ashm. (Q. laurifolia).

†††.—Larval cell hidden under the bark . *Andricus cryptus* Ashm. (Q. catesbæi); *Biorhiza nigra* Fitch (Q. alba).

††††.—Swellings surrounding the base of new shoots or twigs; hard, woody structure.

d.—Small size . *Andricus catesbæi* Ashm. (Q. catesbæi); *N. longipennis* Ashm. (Q. laurifolia).

dd.—Large size . *Loxaulis mammula* Bass. (Q. alba, Q. parvifolia).

F.—Tubular, fusiform, round, or oval shaped galls, issuing from fissures in a branch or twig; occurring always in clusters.

Tubular or fusiform galls surrounding a terminal twig . *Andricus gemmarius* Ashm. (Q. cinerea).

Rugose, oval galls, the rugosities in ridges . *Andricus diffilis* Ashm. (Q. cinerea, Q. catesbæi).

Div. III.—Galls on the roots.

Soft, fleshy, polythalamous gall on the rootlets . *Belonocnema Treatae* Mayr.—Syn. *Dryorhoxenus floridanus* Ash. (Q. virens).

Hard, polythalamous gall, rounded, and composed of many hard larval cells . *Eumayria multiarticulata* Ashm. (Q. laurifolia).

2.—A Synopsis of the North American Cynipidous Rose Galls.

A.—Galls on the leaves.

Small, globular galls, covered with white efflorescence; monothalamous . *Rhodites carolina* Ashm. (Rosa carolina).

B.—Galls on the stem or branches.

Hard cells, surrounding a branch, covered with green moss-like filaments; polythalamous . *Rhodites rosæ* Linn. (Rosa rubiginosa).

Irregular, abrupt, woody swellings of the branch about two inches long; polythalamous . *Rhodites dichlocerus* Harris (Rosa carolina).

Small, rounded swellings of the branch, somewhat hollow internally; polythalamous . *Rhodites verna* O. S. (Rosa blanda).

Abrupt, rounded swellings surrounding smaller twigs and branches, of a hard, pithy structure, seldom over an inch long; polythalamous . *Rhodites ignota* O. S. (Rosa lucida and R. carolina).

Small, round galls covered with prickles, sometimes coalescing; monothalamous . *Rhodites bicolor* O. S. (Rosa ? carolina).

Elongated swellings of the twigs covered with dense prickles; polythalamous . *Rhodites spinosa* Ashm. (*Rosa rubiginosa*).

C.—Galls on the roots.

Rounded, warty gall; polythalamous . *Rhodites radicum* O. S. (*Rosa carolina*).

3.—A Synopsis of the North American Cynipidous Bramble Galls.

A.—Galls on the stem or branches.

An abrupt, pithy swelling surrounding the stem; polythalamous *Diastrophus turgidus* Bass. (*Rubus strigosus*).

An abrupt, elongated, longitudinally furrowed, pithy swelling surrounding the stem, from two to over three inches long; polythalamous . *Diastrophus nebulosus* O. S. (*Rubus villosus*).

Small, round, seed-like galls surrounding a branch, in clusters; monothalamous . *Diastrophus cuscuteæformis* O. S. (*Rubus villosus*, *R. canadensis* and *R. cuneifolium*).

B.—Galls on the roots.

Irregular, fleshy galls from the size of a pea to two inches or more in length; polythalamous . *Diastrophus radicum* Bass. (*Rubus villosus*).

4.—A Synopsis of Miscellaneous Cynipidous Galls.

Small, oblong, spongy galls in leaf axils of Cinquefoil (*Potentilla canadensis*); monothalamous . *Diastrophus potentillæ* Bass.

Rounded, thin walled galls, with cells held in place by coarse fibres, growing on the leaves, petioles and occasionally on stem of the catnip (*Nepeta glechoma*); polythalamous . *Diastrophus similis* Bass.

Small, rounded galls with the larval cell held in place by a dense, white, spongy substance, occurring on *Lygodesmia juncea* . *Antistrophus pisum* Walsh.

Irregular, egg-shaped cells connected by fleshy, potato-like matter on the Potato (*Solanum tuberosum*) . *Tribalia batatorum* Walsh.

A reniform, pithy gall on the stem or branches of *Vaccinium corymbosum* and *V. pennsylvanicum* . *Solenozopheria vaccinii* Ashm.

CYNIPIDOUS GALLS OF FLORIDA.

Subfamily CYNIPINÆ.

Galls on the Post Oak (Quercus obtusiloba).

To the galls already recorded as occurring on this oak in Florida I have to add the following:

1. **Dryophanta polita** Bassett.

Cynips polita Bass., Can. Ent. vol. xiii, p. 56.

This is found most abundantly on the variety of the post oak known as *Quercus parvifolia*; begins developing early in May, but does not reach maturity until the last of December. The flies remain in the galls and do not attempt to escape until the last of February and during March.

2. **Loxaulis mammula** Bassett.

Cynips mammula Bass., Can. Ent. vol. xiii, p. 76.

This very rare insect I took nearly two years ago on the same species of oak, *Quercus parvifolia*; although Mr. Bassett records it as occurring north on the white oak, *Quercus alba*; as with him the flies escaped the middle of July. It is very rare and in only one instance have I found it. My specimens seem to be darker on the thorax and abdomen than the types of Mr. Bassett's sent me by Dr. Mayr.

By a typographical error, this species is omitted in my catalogue, *Loxaulis* being printed over the species belonging to the genus *Holcaspis*.

3. **Holcaspis ficula** Bassett.

Cynips ficula Bass., Can. Ent. vol. xiii, p. 75.

This is a very common species, found on both varieties of the post oak; Mr. Bassett described it from a burr oak, *Q. macrocarpa*.

The gall begins developing in August, the fly reaching maturity and escaping the last of November and in December.

4. **Neuroterus verrucarum** Osten Sacken.

Cynips verrucarum O. S. Proc. Ent. Soc. Phil. i, p. 62.

This species is rare; begins developing in September, but the fly does not escape until March.

5. **Andricus Pattoni** Bassett.

Cynips Pattoni Bass., Can. Ent. vol. xiii, p. 98.

A common species; begins developing in August, but the flies do not escape until February and March.

6. **Andricus topiarius** n. sp.—(The Leafy Bower Gall.)

Galls.—In general appearance exactly similar to *Cynips frondosa* Bass., but not so large, comprising a cluster of small, deformed, lanceolate leaflets, with from three to five small, smooth, oval cells in its matrix; these cells are deciduous, measure but .06 or .07 of an inch in diameter and like other leafy galls fall to the ground on reaching maturity.

Gall-fly.—♀. Length .09 of an inch. Color: uniform red-brown, punctate; eyes dark brown; antennæ 13-jointed, slightly longer than thorax and very slightly thickened towards tip; thorax with the usual grooves, so characteristic of this genus, only not so distinctly apparent as usual, the median longitudinal line being faintly traceable, as well as the two short lines on the shoulders; scutellum rugoso-punctate, cushion-shaped with two small, oblique foveæ at base; abdomen polished, second segment occupying more than half the length of abdomen, third, fourth and fifth segments subequal; wings hyaline, veins hyaline, so clear as to be traced with difficulty, the radial area open, areolet so pale as to be invisible, excepting when held up to the light, then it is seen to be distinct; cubitus obsolete.

Described from two ♀ specimens bred March, 1886. It is terribly preyed upon by parasites; have bred from it *Eurytoma studiosa* Say, a *Torymus*, a *Synergus*, a *Ceroptres*, and a *Platygaster* with clavate legs.

7. **Andricus stropus** n. sp.—(The Leafy-wreath Gall.)

Galls.—A diminutive, brown, acorn-shaped gall, issuing from a bud axil, surrounded at base with small, narrow, dense leaflets. The gall, itself, when removed from its leafy matrix is oblong-oval; in height .15 inch; diameter through .10 inch, and has a little nipple on top. It, too, drops to the ground, but unlike the other species just described, there is but one cell to each gall.

Gall-fly.—♀. Length .10 inch. Head and thorax dark brown, finely punctate, subopaque. Head obfuscate on vertex; ocelli black; antennæ 14-jointed, yellowish brown, infuscated at tips; thorax considerably shorter than abdomen, parapsidal grooves distinct, the median groove obsolete, a slight trace of it visible in front, with two short subobsolete grooves in front on either side of it, scutellum rugoso-punctate, pubescent; pleuræ coriaceous; legs reddish brown, pubescent, and slightly obfuscated; abdomen black, smooth and shining, a few sparse whitish pubescence on sides of second segment; wings hyaline, veins brown, radial area open, areolet distinct, the cubital cell nearly closed.

Described from several specimens bred March, 1886.

8. **Acraspis vaccinii** n. sp.—(The Huckleberry-like Gall.)

Galls.—"Clusters of small, somewhat bell-shaped, petiolate, greenish galls on the under side of the leaves, along the midrib. Their shape may be compared to that of the flowers of *vaccinium*. They are attenuated at the basis into a short petiole, fastened to the midrib of the leaf; the opposite end is truncated the truncature being excavated; the length, from the foot of the petiole to the truncated end, is from 0.12 to 0.15 inch. They grow in numbers, sometimes of ten or more together, so that six, for instance, form a row on one side of the midrib and four or five on the opposite."—Osten Sacken.

Gall-fly.—♀. Length .08 inch. Head and thorax dull brown; abdomen black, shining (one specimen distinctly brownish at base, antennæ 14-jointed, rather long, tip from eighth joint infuscated; parapsidal grooves very indistinct; scutellum ending in a small elevated horn; all tibiæ dark-brown along outer edges. Entirely apterous without even wing scales.

Described from two specimens bred in February, 1886.

This gall is common; begins developing in August, but does not reach maturity until last of December. I have found the same gall on the Post Oak at Asheville, N. C. Baron Osten Sacken mentions having found this species in his second paper on North American Oak Galls 1862, p. 255, from whom the description of the gall is taken; he did not, however, breed the fly.

9. ***Andricus cinnamomeus*** n. sp.

Gall.—A small, cone shaped bud gall .35 to .40 inch long by .15 to .17 inch in diameter, covered with short deformed leaf scales. The egg is evidently deposited in the fall or midsummer, causing an abnormal development of the bud and bud scales, which cover the gall. The larval cell is thin, whitish in color, cocoon shaped and attached to one side, at the base of the gall. One might easily cut into and open the gall without finding it, for unless he accidentally cuts into the side where the cell is situated, it would remain undiscovered.

Gall-fly.—♀ Length .10 inch. Color a uniform bright cinnamon red, excepting the dark brown or black eyes. Antennæ 13-jointed, reaching beyond the base of the abdomen; head and thorax punctate, sparsely pubescent, parapsidal grooves well defined; legs sparsely pubescent; abdomen ovate, second segment prolonged; sheaths porrect, ventrally; wings glassy hyaline, veins pale, the areolet and cubitus obsolete, although in two specimens they are faintly traceable.

Described from several specimens bred April, 1887. Occurs on *Quercus parvifolia*.

10. ***Andricus? floridanus*** n. sp.

Galls.—Hard, irregular swellings of a branch or the stem close to the ground, never very high up, from half an inch to three or more inches long by not more than half an inch in diameter. Some specimens might easily be confounded with *Andricus batatoides* m., *Andricus medullæ* m., or *Neuroterus Rileyi* Bass., but the gall producer is very distinct from any of these.

Gall-fly.—♂ ♀. Length .12 to .17 inch. Color dark brown, abdomen reddish brown polished. Antennæ ♀ 16, ♂ 17 jointed, as long as the whole body, slender, nearly the same thickness throughout. Head and thorax punctate, pubescent, cheeks well rounded; scutellum cushion shaped, pubescent, foveæ indistinct; abdomen ovate, slightly compressed; wings hyaline, veins brown, radial vein reaching costal edge; areolet distinct; cubital cell closed, the cubital nervure does not quite reach apical margin.

Described from several specimens. This species in its antennal characters is very distinct from any described species in the Cynipinæ, no ♀ yet described having sixteen joints in the antennæ; but it seems so closely related to the genus *Andricus* that it may be placed there temporarily. It is found on *Q. parvifolia*.

11. **Biorhiza mellea** n. sp.

Galls.—Small, brownish yellow, globular galls, occurring separately or in clusters of three or more together, on the upper surface of the leaf, attached by a slender point and easily detached. Externally they are covered with minute warty, pubescent dots; internally they are fleshy, but when fully matured are of a more or less cellular consistency and shrivel in drying. Diameter .10 to .15 inch. They fall to the ground and mature in the sand and fallen debris.

Gall-fly.—♀. Length .07 inch. Color uniform dark honey yellow, eyes brown. Head finely punctate; thorax smooth, polished, parapsidal grooves distinct; scutellum rugose; wings rudimentary; abdomen large, longer than head and thorax combined, compressed and vertically as broad as long.

Described from eight specimens reared in February. Occurs on *Q. parvifolia*.

12. **Callirhytis parvifoliae** n. sp.

Gall.—A small rounded gall on the midvein of a leaf, half projecting above and half below the surface of the leaf, and usually but not always, the portion above the upper surface, is deeply indentated. It is polythalamous and contains several larval cells all radiating from the centre. Diameter .12 to .15 inch.

Gall-fly.—♀. Length .06 inch. Color: head, thorax and abdomen black, antennæ and legs brownish yellow. Head and thorax microscopically punctate, only apparent with a high power lens, shining; antennæ 13-jointed, short, reaching only to base of scutellum; thorax with two delicately defined parapsidal grooves and the usual two short anterior median grooves faintly traceable; scutellum large, foveæ distinct, contiguous; abdomen a little longer than thorax, compressed, polished, the second segment occupies not more than half its whole length, all the other segments visible, gradually subequal; sheaths short not pubescent at tip; wings hyaline, finely pubescent, veins pale, excepting basal vein and the submarginal from its junction with the basal; areolet distinct, cubital cell half closed.

Described from two specimens. This gall is not rare on *Q. parvifolia*, but all the flies reared, except the two above, were guest-flies.

Galls on the Swamp Chestnut Oak (Quercus prinus).

This oak grows to an immense height in our swamp-hammocks and from it I have taken several interesting galls identical with some found north on the white oak (*Quercus alba*).

13. **Callirhytis seminator** Harris.

Cynips seminator Harris, Ins. Inj. Veg. p. 548. Fitch, 2d Rep. p. 315.

This species, before only recorded as occurring on the white oak (*Quercus alba*), is not uncommon here, both on *Quercus prinus* and on the swamp white oak *Quercus bicolor*.

Callirhytis operator O. S., occurring on the black-jack (*Q. nigra*) may be a phytophagic variety of this well known species; the galls are similar, but the flies are certainly distinct. I have both species in my collection.

Callirhytis seminator begins to develop here, on the small twigs, in April; by the middle of June the flies are fully developed, but they do not escape from the galls until the first week in July.

14. **Holcaspis rugosa** Bassett.

Cynips rugosa Bass., Can. Ent. vol. xiii, p. 100.

This species was inadvertently left out of my Catalogue; Mr. Bassett says it occurs north on *Quercus prinoides*, an oak very closely related to the present species. Here, I find it common on *Quercus prinus* and *Quercus bicolor*; it seems to be identical with the species described by Baron Osten Sacken as *Cynips juglans*, but the fly was not characterized and there is still uncertainty as to its being the same gall.

The gall begins to develop early in September; by the last of November the flies are fully matured, but do not escape until the last of December and early in January. By the middle of January nothing remains in the galls but parasites or parasitic larvæ.

15. **Neuroterus majalis** Bassett.

Cynips majalis Bass., Proc. Ent. Soc. Phil. iii, p. 63.

Mr. Bassett records this species also from the white oak (*Quercus alba*; I have found it here on *Quercus prinus*.

Galls on the Swamp White Oak (Quercus bicolor).

This oak is considered by many botanists only a variety of *Quercus prinus*; galls found on one are very apt to be found on both, and insects are good botanists; all the galls found on *Quercus prinus* and recorded above were also found to occur on it.

The two following species, which are undescribed, seem to be confined entirely to this oak, as I have not been able to find them on *Quercus prinus*.

16. **Acraspis lanæglobuli** n. sp.—(The Wooly Globe *Acraspis*.)

Galls.—Round or globular galls, slightly attached to the under surface of the leaf: .30 to .35 of an inch in diameter and covered with a fine, dense, grayish pubescence; internally, of a pithy structure, with a large, thin-shelled kernel in the centre.

Gall-fly.—♀. Length .16 to .18 inch. This species in size and general appearance very closely resembles *Acraspis echini* Ashm., but differs as follows: mandibles black; antennæ brown-black from sixth to terminus, although the fifth joint is also sometimes black or black at base; the legs are not obfuscated and the posterior coxæ is very hairy; the abdomen at base is pale and the terminal segments are blackish.

Described from eight ♀ bred specimens.

17. ***Acraspis echini*** n. sp.—(The Echinus *Acraspis*.)

Galls.—Precisely similar to the galls of *Acraspis erinacei* Walsh, netted or fissured like a strawberry and covered with spiny prickles as in that species, only the gall is never so large and the netted surface is slightly coarser. The majority of the specimens are two-celled, although occasionally four-celled; when this happens, which is seldom, I think it is occasioned by the union of two galls; they are never eight-celled, as is sometimes the case with *Acraspis erinacei* W.

Gall-fly.—♀. Length .13 to .15 inch. Color reddish brown. Head and thorax finely rugose; eyes dark brown; ocelli red, shining; antennæ 14-jointed, about as long as the whole body, filiform, dark brown above, paler beneath, first joint and some of the other joints at tip, slightly yellowish, joints to eighth long and slender, the third joint being the longest, joints from eighth to tip short, the terminal joint being slightly longer than antepenult; thorax slightly pubescent, parapsides distinctly visible posteriorly; scutellum ending in a blunt, but not a very distinct horn, pubescent; wings in the form of two oblong white scales as long as hind coxæ; legs reddish brown, more or less obfuscated, particularly along the outer edges of tibiæ, pubescent; abdomen bright reddish brown, smooth and shining, compressed, vertically it is as wide as long, the sheaths of ovipositor projecting and thickly tufted with hairs; sides of second segment but slightly pubescent.

Described from numerous specimens bred in November. Specimens of *Acraspis erinacei* Walsh, from the white oak (*Quercus alba*) are in my collection; the flies are smaller and very distinct from this species.

Galls on the Laurel Oak (Quercus laurifolia).

To the numerous galls occurring on this oak, recorded in my previous papers I have the pleasure of adding the following new species:

18. ***Neuroterus longipennis*** n. sp.—(The Long-winged *Neuroterus*.)

Galls.—Small, oblong, irregular, woody swellings, surrounding the base of new shoots, from .35 to .40 of an inch in length, by from .14 to .16 inch in diameter.

Gall-fly.—♀. Length .04 to .05 inch. Black, smooth and shining. Antennæ and legs including all coxæ, yellowish, thorax smooth, without parapsidal grooves, although in certain lights there are opaque lines; scutellum tumid, finely rugosopunctate; abdomen very small, black, shining; wings hyaline, very long, measuring nearly .08 inch from base to tip, the radial area is open, and is very large and long, the areolet is distinct and the cubital cell is closed, the cubitus being, however, very pale.

Described from eight specimens bred May, 1886.

19. ***Neuroterus laurifoliae*** n. sp.—(The Laurel-oak Woolly Gall.)

Gall.—An oblong, woolly gall on the upper or lower surface of the leaves; the wool is fawn colored, long and fine, covering three or four, sometimes more, irregularly rounded, flattened disks, in the centre of which live the flies; they are attached to the midrib by a nipple-like point; the disk or cell is concave above and measures .08 to .10 inch in diameter.

Gall-fly.—♀. Length .05 inch. Black, smooth and shining. Antennæ pale yellowish brown; legs pale yellowish, all tibiae and femora more or less infuscated in the middle, black or brown; abdomen large, globose, black and shining; wings hyaline, radial area open, very long and narrow, areolet distinct, cubital cell open; length of wing hardly .06 inch.

Several specimens bred. The fly very strikingly resembles *Neuroterus verrucarum*, but the gall is very distinct and cannot be confounded with it.

20. ***Amphibolips spinosa*** n. sp.

Gall.—A small, brown globular gall, covered with prickles or spines; the shell is thick and covers with a slight spongy substance, a thin larval cell; diameter .30 inch.

Gall-fly.—♀. Length .18 inch. Color reddish brown, finely sparsely pubescent. It closely resembles *Amphibolips citrifomis*, and can only be distinguished by its slightly darker color, less coarsely rugose thorax, more densely pubescent legs. The basal vein, tip of submarginal vein and the cloud at base of marginal cell are distinctly black; the areolet, too, is smaller than in that species.

Described from one specimen reared in January.

21. ***Andricus femoratus*** n. sp.

Gall.—A small, very thin shelled globular gall, containing a larval cell held in place by fine radiating filaments; diameter .30 inch.

Gall-fly.—♀. Length .12 inch. Head and thorax brown-black, coarsely rugosely punctate, the parapsidal grooves almost obliterated by the coarse sculpture, as in the genus *Amphibolips*. Antennæ and legs pale yellowish brown, the posterior femora very greatly swollen, as in certain *Chalcids*, black. Abdomen black, polished, second segment greatly lengthened. Wings dusky hyaline, pubescent, cubital cell not quite closed.

Described from one specimen reared May, 1886. It is very remarkable and interesting from its swollen femora, but with this exception does not depart from many normal species in the genus.

22. ***Andricus calycicola*** n. sp.

Gall.—A small, smooth, hard, but thin shelled globular gall form .10 to .15 inch in diameter, issuing from a bud, but occasionally enclosed by the bud scales or by an aborted acorn cup. This gall develops very rapidly in the fall (October) and it drops to the ground where under the fallen debris the final transformations of the single enclosed larva is consummated, gnawing its way out of the gall in February.

Gall-fly.—Color brownish yellow, posterior tibiae dusky; eyes and abdomen black. Head and thorax rugoso-punctate as in the preceding species; antennæ 13-jointed; wings hyaline, glassy, veins yellowish, the marginal vein pale, areolet small, its surrounding veins pale and faint, cubitus subobsolete.

23. ***Callirhytis cellæ*** n. sp.

Gall.—A slight fleshy swelling along midvein, covering two or more small cells; diameter of cells .08 to .10 inch.

Gall fly.—♀. Length .08 inch. Color black, legs brownish yellow, antennæ dusky. Head and thorax finely punctate; antennæ 13-jointed; abdomen polished black, ventral valve projecting, its tip pubescent; wings hyaline, veins pale yellowish.

Described from two specimens taken out of galls in September, 1885, since which time I have failed to secure additional specimens.

Galls on the Upland Willow or Blue Jack Oak (Quercus cinerea).

To the seven species, described by me, as occurring on this oak, I add four new species: one a "Jumping Gall" of great interest, taking *one whole year to develop*; another a minute gall found on the blossoms or aments; and still another, *Andricus difficilis*, which has taken me just six years to work up.

24. **Andricus (Trisolenia** n. g.) **saltatus** n. sp.—(The Blue Jack Jumping Gall.)

Galls.—Oblong-oval, longitudinally ribbed, brown galls, without a distinct cell, occurring two or three together and issuing from the bud axils in early spring; they are but slightly attached and fall to the ground on the slightest jarring of the tree.

Gall-fly.—♀. Length .17 inch. Head and thorax dark brown-black, finely rugoso-punctate, opaque; ocelli red, shining; antennæ 16-jointed, as long as thorax, pale brown; parapsidal grooves distinct, with a distinct median groove between, some punctures along the edges and two short parallel grooves, one on either side of median groove parallel with it, but only extending half way on the mesothorax: between the parapsidal grooves and the groove extending from base of wing is another short longitudinal groove; scutellum coarsely reticulately rugose, with two large, shallow, oblique, shining foveæ at base; pleuræ striate in front, becoming rugose posteriorly; legs reddish brown, the thighs and outer edges of femora and tibiæ obfuscated, punctate and pubescent; coxæ black, smooth and shining above; beneath pubescent. Abdomen dark reddish brown, shining, with a few hairs on sides of second segment. Wings hyaline, veins pale brown, slightly yellowish, submarginal brown, stouter, radial area open, the areolet very large, distinct, cubital cell only half closed. The ♂ differs from ♀ in having 17-jointed antennæ and being almost entirely a pale reddish brown; the femora and tibiæ are but slightly obfuscated.

Described from several specimens.

This gall was discovered three years ago; it appears the last of March, and when first taken from the tree and for several weeks afterwards, has the power of jumping, due to the contractions and sudden relaxation of the larva within; some of them will jump three-quarters of an inch off the table. Out of nearly two hundred galls gathered the first year of its discovery, but one reached maturity; all the rest died. This specimen was just eleven months and some days in the gall. In 1885 but three specimens were raised, one a

male, and the period of development was the same. This year all my specimens seem to be dead, although I collected at different times and endeavored as far as possible to collect the most matured specimens; evidently the season was too dry for them. Last March I collected two females while ovipositing in the buds; the ovipositor was so deeply immersed in the bud as to enable me to capture the flies in my fingers before they had time to withdraw and escape; they agreed perfectly with the bred specimens.

25. **Andricus difficilis** n. sp.—(The Difficult Gall.)

Galls.—Small, irregularly rounded, densely rugose, grayish galls, slightly flattened at sides, the rugosities arranged transversely in from five to six rows; diameter through flattened sides .08 to .10 inch; crossways .12 to .15 inch; height .12 to .15 inch. These galls occur in clusters, issuing in rows from fissures or slits in the terminal twigs; when mature they fall to the ground.

Gall-fly.—♀. Length .14 inch. Color reddish brown. Head finely punctate, a dark brown streak on face, extending from base of antennæ to clypeus; eyes and ocelli dark brown. Antennæ 14-jointed, a little longer than head and thorax together, yellowish brown, slightly infuscated at tips; thorax almost smooth, shining, with distinct parapsidal grooves, a median groove and a slight groove near base of wings; pleuræ dark brown, pubescent, the meso-pleuræ showing fine, short, microscopical striæ; scutellum rugose not pubescent; legs uniform yellowish brown, coxæ black; abdomen reddish brown, shining, showing its surface, under a high-power lens, microscopically punctate, the second segment does not occupy nearly one-half the length of abdomen with a few hairs at its sides, the other segments are about equal in length; wings hyaline, veins brown, the radial area open, the radial vein undulated at tip, areolet distinct, cubital cell almost closed, the cubitus ending just before reaching the first transverse; there is a slight yellowish cloud in the break in the second longitudinal vein, and along the edge of the first transverse and second transverse veins.

Described from four specimens.

For six years I have been trying to rear the originators of this gall and only succeeded this fall; I have either collected the galls too soon or too late. On my return from the mountains of North Carolina, September 15th, I found a few galls which still retained flies, and from which the above description is drawn up. The flies evidently escape from the galls by the last of August or early in September.

26. **Andricus blastophagus** n. sp.—(The Pollen-feeding *Andricus*.)

Galls.—Minute, smooth, oval galls the size of an entomological pin-head, occurring on the aments or blossoms; they are so small as to be easily mistaken for the ovaries.

Gall-fly.—Length .05 inch. Uniformly reddish brown, finely rugoso-punctate. Antennæ 13-jointed, they and legs pale yellowish brown. Abdomen reddish brown, smooth and shining, slightly dusky towards apex; wings hyaline, veins pale, radial area open, areolet indistinct, cubitus obsolete.

This interesting little insect is described from several specimens bred in May, 1886.

27. **Dryophanta cinereæ** n. sp.—(The Upland-willow Oak Spangle Gall.)

Galls.—Small, semispherical galls, sessile on the under surface of the leaves; internally there is a loose kernel which moves freely about.

Gall-fly.—Length .07 inch. Differs from *Dryophanta palustris* O. S., *Dryophanta laurifoliæ* Ashm., and *Dryophanta aquaticæ* Ashm., only in its much smaller size. In having pale brown antennæ and the posterior coxæ black; while the color of the legs are pale yellow, there is a faint brownish blotch on basal third of posterior tibiæ not apparent in any of the other species.

Described from several specimens bred in May, 1886.

While the fly of this species might easily be confounded with those of the others, the gall easily separates it; it does not project above the upper surface of the leaf as do the other species. Very rare.

Galls on Water Oak (Quercus aquatica).

To the galls already described as occurring on this oak add the following :

28. **Callirhytis aquaticæ** n. sp.

Gall.—A hard knotty swelling at base of small twigs and branches, from .35 to .75 inch long by from .30 to .40 inch in diameter.

Gall-fly.—♀. Length .08 inch. Color entirely black, excepting tips of tibiæ, tarsi, and antennæ, which are somewhat reddish. Head and thorax finely rugoso-punctate, parapsidal grooves distinct, two short median grooves anteriorly and another short groove near the base of the wings. Abdomen polished, short, broader vertically than long, subglobose, truncate posteriorly; ventral valve short, obtuse. Wings hyaline, veins brownish.

Described from one specimen cut out of a gall in March.

Galls on Catesby's Oak (Quercus catesbæi).

29. **Andricus infuscatus** n. sp.

Gall.—A globular, fleshy gall, densely covered with yellow wool; diameter .23 to .25 inch. It is attached by a slight point to the upper surface of the leaf and when mature is in reality nothing but a hard, tough, larval cell, covered with wool; the woolly covering is easily detached. It is monothalamous; occasionally several galls occur together on the leaf compressing one another into odd shapes but the galls fall to the ground, separate and renew their globular form, and the fly reaches maturity in the damp earth. This gall has been known to me for several years, but until its habits were discovered my several efforts to rear the fly from it were unsuccessful.

Gall-fly.—♀. Length .10 inch. Color: head, thorax and legs brown. Antennæ towards tip and posterior tibiæ, infuscated; ocelli and eyes dark. Head and thorax finely confluent punctate; parapsidal grooves sharply defined, the two anterior median grooves extend to the middle of mesothorax, polished; an-

tennæ 14-jointed, long, when extended backwards reaching to about the middle of abdomen, terminal joint longer than the preceding joint. Abdomen globose, slightly compressed, sheaths generally hidden. Wings hyaline, pubescent, veins brownish, marginal cell long and narrow, marginal nervure reaches the costal edge; areolet distinct; cubital cell nearly closed; cubital nervure reaches apical margin.

Described from several specimens reared in March.

30. **Andricus cryptus** n. sp.

Gall.—A small cocoon-like gall one-tenth of an inch in diameter, hidden in a branch under the bark and not visible externally. There is no appreciable swelling of the branch from this gall-fly, the fly escaping by cutting a hole from its larval cell through the bark; observing these holes in the bark led to its discovery.

Gall-fly. ♀. Length .12 inch. Color: head, antennæ, thorax and legs reddish brown; abdomen red. Antennæ 13-jointed, rather stout, joints narrowed at base; head and thorax confluent punctate, parapsidal grooves not sharply defined, but distinct; a distinct, but delicate median groove; scutellum subquadrate rounded posteriorly, depressed at base with two widely separated foveæ. Abdomen dilated below, as wide vertically as long, the second segment lengthened, surrounded at base by a woolly girdle, following segments short, but visible; sheaths not projecting. Wings glassy-hyaline, veins pale, with a slight yellowish tinge, marginal cell open along margin; areolet and cubitus obliterated.

Described from two specimens reared in May, 1886.

Galls on White Oak (Quercus alba).

31. **Dryophanta carolina** n. sp.

Gall.—A small, hard cellular, finely pubescent globular gall, .20 inch in diameter, slightly attached to the petiole of a leaf.

Gall-fly.—♀. Length .11 inch, robust. Color: head and abdomen brown, thorax black, antennæ and legs reddish brown. Antennæ 14-jointed, about as long as head and thorax combined; scutellum rugoso-punctate, pubescence long; abdomen as long as head and thorax together, sheaths projecting and with long hairs. Wings hyaline, pubescent, veins very distinct and thick, black, radial vein thickened, second transverse vein in a smoky cloud, areolet and cubital cell distinct, the latter closed, cubital nervure extends to apical margin

Described from two specimens reared in February from galls collected in Asheville, N. C., October, 1886.

Gall-flies captured at large, their galls unknown

32. **Dryophanta texana** n. sp.

♀.—Length .17 inch. Color: head and thorax black, antennæ, legs, including coxæ and abdomen brownish red, first two antennal joints brownish yellow. Antennæ 14-jointed, reaching to tip of scutellum; head finely punctate; ocelli large, prominent; thorax smooth, polished, with two parapsidal grooves, pleuræ and metathorax rugose, the disk of mesopleuræ smooth and polished; scutellum large rugoso-punctate, projecting over metathorax; wings hyaline, veins thick,

distinct, black ; the marginal nervure is greatly incrassated towards tip which does not reach costal margin, the second transverse vein in a smoky cloud ; areolet and cubital cells distinct, the latter distinctly closed ; there is also a smoky cloud at the break in the anal nervure and the thickened cubital nervure does not quite reach the apical margin.

Hab.—Texas. Described from one specimen, discovered among a lot of Texan Hemiptera, kindly sent me by Mr. Geo. J. Angell, of New York City.

33. **Aulax Harringtoni** n. sp.—♀. Length .11 inch. Head and thorax black, rugose, the sculpture being somewhat longitudinal. Antennæ 14-jointed, brown, reaching to the tip of the abdomen, joints 3, 4, 5 and 6 very nearly equal in length. The parapsides are distinct, and there is a slight median groove extending from base of scutellum not quite to middle of mesothorax ; scutellum rounded with two sharply defined, oblique foveæ at base. The legs and abdomen slightly sanguineous ; wings hyaline with distinct brown veins, a closed marginal cell, a rather large areolet and the cubital cell open at base.

Hab.—Canada. Described from one specimen sent by Mr. W. Hague Harrington, of Ottawa, Canada.

This is the first real *Aulax* to be described in our fauna, and like the European species of the genus it will no doubt be found to produce a gall on a plant belonging to the *Compositæ*.

BASSETTIA n. g.

The antennæ are very slender, 14-jointed, very slightly thickened toward tips, third joint slightly longer than fourth. Head as wide as the posterior part of mesothorax, punctate ; cheeks full bulging. Thorax not high, one-third longer than wide, well rounded ; mesothorax sharply transversely rugulose, extending and entirely hiding and covering the prothorax above ; parapsidal grooves very delicate, subobsolete anteriorly and converging posteriorly ; two short, delicate median grooves anteriorly, pleuræ rugulose ; scutellum longer than broad, not elevated above a line with the mesothorax, rounded posteriorly, with a transverse groove at base and two small, oblique, shallow foveæ, only distinguishable with a high power lens. Metathorax abruptly declining. Abdomen longer than thorax, compressed, a tuft of hair at base of second segment. Wings hyaline, not pubescent ; veins very slender, delicate ; radial cell long, open.

In structure of thorax and sculpture this genus is related to *Rhoophilus* Mayr, otherwise it seems very distinct. It is dedicated to Mr. H. F. Bassett, of Waterbury, Conn., who has done so much towards advancing our knowledge of these intricate Hymenopters.

34. **Bassettia floridana** n. sp.—♀. Length .13 inch. Black, head and thorax subopaque, abdomen shining, antennæ and legs brown, posterior femora and tibiæ dusky along dorsal surface. Wings hyaline.

Described from four specimens captured at large.

Mr. Bassett's *Cynips tenuicornis* will also belong to this genus.

EUMAYRIA n. g.

♂.—Antennæ long, filiform, 18-jointed; third joint very long, strongly curved, following joints short, gradually subequal, excepting the last joint, which is slightly longer than the preceding joint. Thoracic and wing characters as in the genus *Diastrophus*, excepting there is an indistinct median line of faint punctures on mesothorax; posterior margin of thorax straight, slightly ridged; mesopleuræ striate. Abdomen ovate, but slightly compressed beneath; the second segment occupies more than two-thirds its whole length; third segment short, following segments very short.

♀.—Antennæ much shorter than ♂, 14-jointed, gradually incrassated, the third joint is not especially long, not as long nor as thick as the first joint, about twice as long as fourth, others short, but gradually widened, the last joint being the largest and stoutest, more than twice as long as the preceding joint and shows evidences of being composed of three closely joined or connately joined joints. The abdomen is compressed, truncate posteriorly, ventral valve long, projecting; other characters as in the ♂.

This genus is a well marked one, and easily separated from all others in the family by the 18-jointed antennæ in the male and the other characters specified.

It is respectfully dedicated to Dr. Gustav Mayr, of Vienna, Austria, a *savant* of whom it is unnecessary to speak, his labors in this family and in many others in the order *Hymenoptera*, etc., having justly entitled him to a world-wide fame.

35. **Eumayria floridana** n. sp.—♂ ♀. Length .11 to .13 inch. Color black, antennæ and legs red, coxæ black, tegulæ yellowish. Wings hyaline, pubescent, veins brownish, areolet small, cubital cell two-thirds closed, marginal cell open along the margin.

Described from five specimens taken at large in March, 1887.

Galls on Wild Rose (Rosa carolina).

36. **Rhodites carolina** n. sp.—♀. Length .12 inch. Head, antennæ, excepting first two joints, and thorax, black; legs and abdomen red. Wings hyaline, marginal nervure very much thickened, veins, excepting submarginal vein at base, black.

Hab.—Asheville, N. C.

Differs principally from *Rhodites ignota* O. S., in having no clouds in marginal cell.

37. **Rhodites dichlocerus** Harris.

Two specimens of this gall were taken from the common wild rose in March, and numerous ♀ and ♂ flies were reared from them in April.

Galls on the Blackberry (Rubus villosus).

38. **Diastrophus nebulosus** Osten Sacken.

Diastrophus nebulosus O. S., Proc. Ent. Soc. Phil. vii, p. 36.

This gall is only occasionally found; it seems to be gradually disappearing from this part of the State.

39. **Diastrophus radicum** Bassett.

Diastrophus radicum Bass.

What I take to be this species has been twice found on the roots of the blackberry, in newly ploughed ground, but I am uncertain as to its identity, the flies not having been reared.

Galls on Wild Rose (Rosa lucida).

40. **Rhodites ignota** Osten Sacken.

Rhodites ignota O. S., Proc. Ent. Soc. Phil. vii, p. 42.

Along the banks of the St. John's River this gall is not uncommon on the rose; it takes a whole year to develop, and while hundreds of its guest-fly *Periclistis pirata* O. S., have been reared from it no specimens of the true originator of the gall have been obtained.

For the two rose galls not named by Baron Osten Sacken I propose the names *Rhodites carolina* and *R. spinosa*; specimens of the former were obtained by me this fall from *Rosa carolina*, at Asheville, N. C.

Galls on Huckleberry (Vaccinium corymbosum & V. pennsylvanicum).

I have obtained several specimens of this gall from *Vaccinium corymbosum*, but have bred but one fly. Mr. Wm. Brodie, of Toronto, Canada, sent me one specimen of a gall exactly like the ones ob-

tained in Florida, and says it is common there on *Vaccinium pennsylvanicum*. He has had very little success at rearing the gall-maker, and reports having reared nothing from it but parasites.

The single ♀ specimen obtained by me is the type of a new genus.

SOLENOZOPHERIA n. g.

This genus is very similar to *Loxaulis* Mayr, and could only be confounded with that genus. It differs from it, principally, by having two faint, nearly parallel, narrow, parapsidal grooves, distinct posteriorly, subobsolete anteriorly; a more prominent, cushion-shaped, rugoso-punctate scutellum, without foveæ, but a slightly curved depression at base, similar to *Loxaulis*; the venation of wings as in *Loxaulis*, but the second longitudinal vein is very faint and there is no cubitus, although there is a very small areolet; the abdomen is short, much broader vertically than long, compressed; the ventral valve is rather prominent, but not so pointed as in *Aulax*, *Diastrophus* or *Rhodites*, it being squared off at a right angle; the second segment occupies about half the whole surface, the third segment hardly half as long as the second, fourth and fifth very short, others hidden.

41. *Solenozopheria vaccinii* n. sp.

Galls.—Irregular, reniform, pithy galls, from one-half to one inch or more long and seldom more than half an inch in diameter, although most frequently much less; on the stems.

Gall-fly.—♀. Length .09 inch. Slender, pale yellowish brown, the surface is microscopically rugulose, but shining; ocelli and eyes brown; antennæ 13-jointed, very slightly, gradually thickened toward tips, with the terminal two-thirds infuscated; thorax with two narrow parapsidal grooves, much more distinct posteriorly than anteriorly; scutellum cushion-shaped with a curved depression at base, finely rugoso-punctate; tibiæ and posterior femora infuscated with a darker shade of brown on their upper edges; abdomen with the terminal segments brown; wings hyaline, pubescent, radial cell open, the cubitus obsolete, veins pale brown, the first transverse thick, stout, margined with a faint yellowish cloud, there is a slight yellowish cloud in the break in the second longitudinal vein and the areolet and base of radial cell all enclosed in the same colored cloud.

A very beautiful species, bred last of February, 1886.

I have drawn up the following tables of the genera of the *Eucoilinae* and *Figitinae*, recognized in our fauna, after much labor and research amidst the conflicting European authorities, and it is hoped with satisfactorily and permanent results:

Subfamily EUCOILINÆ.

Scutellum cupuliform, abdomen obliquely truncate at tip.

Table of Genera.

Mesothorax polished without grooves.

Wings ciliate; antennæ ♀, 13-jointed, moniliform; ♂, 15-jointed, filiform.

♀ antennæ with three terminal joints enlarged; ♂ with third joint much shorter than fourth, fourth joint longest, following joints thrice as long as thick (2) **Kleidotoma** Westwood.

Marginal cell open, anterior wings emarginate at apex.

(1) **Coptereucoila** n. g.

♀ antennæ with six terminal joints enlarged; ♂ with third joint longest, following joints twice as long as wide..... (3) **Hexaplasta** Förster.

♀ antennæ with eight terminal joints enlarged; ♂ with third joint, narrowed at base, following joints thrice as long as wide, terminal joint lengthened..... (4) **Dimicrostrophis** n. g.

♂ antennæ 16-jointed, third joint shorter than fourth, following joints four times as long as wide (♀ unknown)... (5) **Macrocerucoila** n. g.

Wings not ciliate, pubescent.

Metapleuræ not hairy, second abdominal segment with a hairy girdle; ♀ antennæ gradually incrassated; ♂ with the third joint slightly shorter than fourth or about equal, following joints about thrice as long as wide..... (6) **Eucoila** Westwood.

Metapleuræ hairy; ♂ antennæ with third joint longer than fourth, following joints five times as long as wide. (7) **Glaurospidia** Thomson.

Wings entirely without pubescence; second abdominal segment without a hairy girdle..... (8) **Cothonaspis** Hartig.

Mesothorax polished with two parapsidal grooves.

♀ antennæ 13-jointed, ♂ 15-jointed, filiform, third joint twice as long as fourth and strongly curved and excised. (9) **Eucoilidea** n. g.

Subfamily FIGITINÆ.

Table of Genera.

Scutellum smooth, polished, bifoveate, with a small erect club on its disk posteriorly; mesothorax smooth, polished, two distinct grooves; ♀ antennæ gradually incrassated, moniliform..... (1) **Thyreocera** n. g.

Scutellum smooth, polished, bifoveate, no erect club on its disk; mesothorax smooth with two grooves converging posteriorly, ♂ antennæ 14-jointed, third joint much longer than fourth, terminal joint longest.

(2) **Omalaspis** Giraud.

Scutellum rugose, obtusely rounded at tip, or occasionally acute, but never prolonged into a long spine; abdominal petiole short, striate.

Mesothorax smooth with two grooves; ♀ antennæ 13-jointed, incrassated, moniliform; ♂ 14-jointed, filiform.

Eyes hairy; third antennal joint in ♂ much longer than fourth.

(3) **Figites** Latreille.

Eyes not hairy; third antennal joint in ♂ not longer than fourth.

(4) **Figitodes** n. g.

Scutellum ending in a long spine, bifoveate.

Mesothorax smooth with two grooves; wings not pubescent, marginal cell closed; scutellum rugose, a median channel extending slightly up the spine; ♀ antennæ 13-jointed, incrassated, moniliform; ♂ 14-jointed, third joint much shorter than fourth, terminal joint longest.

(5) **Solenaspis** n. g.

Mesothorax scabrous, multicarinate; marginal cell open; eyes bordered interiorly with a carina; antennæ filiform in both sexes, ♂ 14-, ♀ 13-jointed.

(6) **Aspicera** Dahlbom.

Scutellum not ending in a spine.

Mesothorax scabrous, opaque, two grooves and a median carina; marginal cell open; scutellum large, truncate, channeled throughout; antennæ filiform in both sexes. ♂ 14-, ♀ 13-jointed.....(7) **Onychia** Haliday.

Scutellum cone shaped, not foveate.

Mesothorax scabrous, shining, two grooves, posterior margin straight, with a slight ridge; antennæ ♂ filiform, 14-jointed, joints connately joined; abdominal petiole very long, smooth; tips of abdomen rounded.

(8) **Acothyreus** n. g.

Scutellum subconical, bifoveate.

Mesothorax smooth, polished, two grooves, posterior margin straight, ridged; petiole of abdomen long, smooth, tip of abdomen pointed; antennæ in both sexes filiform, ♂ 14-, ♀ 13-jointed.....(9) **Anacharis** Dalman.

Scutellum truncate, elevated posteriorly, bifoveate.

Mesothorax uniformly punctate, two grooves; metapleuræ opaque; wing veins well developed, cubital, areolet and marginal cells, petiole of abdomen not especially long; abdomen clavate, slightly pubescent at base; antennæ filiform in both sexes, ♂ 14-jointed, third joint strongly excised, ♀ 13-jointed.....(10) **Amblynotus** Hartig.

Scutellum of ordinary form, bifoveate.

Mesothorax smooth, polished, two grooves; metapleuræ polished; wing veins well developed, cubital, areolet and marginal cells; abdomen cultriform or greatly compressed; second abdominal segment nearly of equal length with third; antennæ short, filiform in both sexes, ♂ 14-jointed, third joint not excised. ♀ 13-jointed.....(11) **Sarothrus** Hartig.

Mesothorax smooth, subopaque, sparsely pubescent, two very delicately defined grooves; metapleuræ hairy; abdomen compressed; antennæ short, filiform in both sexes, ♂ 14-jointed, third joint deeply excised, ♀ 13-jointed.

(12) **Melanips** Haliday.

Scutellum unifoveate.

♀ antennæ 13-jointed, incrassated, terminal joint very large.

(13) **Lonchidia** Thomson.

Subfamily EUCOILINÆ.

COPTEREUCOILA n. g.

Closely related to the genus *Kleidotoma* Westwood, but easily separated from it by the open marginal cell and the emarginate anterior wings, as in the *Proctotrupid* genus *Coptera* Say.

42. **Coptereucoila americana** n. sp.—♀. Length .04 inch. Black polished, legs and antennæ red. Wings hyaline, ciliate, veins dark, marginal cell open.

Described from two specimens.

KLEIDOTOMA Westwood.

43. **Kleidotoma americana** n. sp.—♀. Length .10 inch. Black, highly polished. Head smooth, with a few scattered lines and punctures; antennæ 13-jointed, rufous, slightly pubescent, the first joint stout, long, obconical, as long as second and third combined, second oval, stouter than third, third slightly longer than second narrowed at base, fourth to tenth very short, small; eleventh, twelfth and thirteenth joints greatly enlarged, nearly four times as large as any of the others, the terminal one being slightly the largest. Thorax polished without grooves, the visible outer angles of prothorax reddish; scutellum with a small pale brownish cup on disk and deeply foveated at base. Legs pale yellowish brown; abdomen elongate ovate, slightly compressed and somewhat acuminate, black and shining. Wings hyaline, pubescent, ciliate, marginal cell small, triangular, closed; no other cells.

Hab.—Canada (Abbe Provancher).

HEXAPLASTA Förster.

44. **Hexaplasta maculipes** n. sp.—♀. Length .09 inch. Black, polished. Legs dark red with a dark blotch on all the femora above; antennæ dark red, with the six enlarged terminal joints dusky; abdomen much longer than head and thorax combined. Wings hyaline, veins reddish, excepting the closing marginal vein, which is pale.

Described from one specimen taken in March.

This species is about twice as large as *Hexaplasta zigzag* Riley, and cannot be confounded with it.

DIMICROSTROPHIS n. g.

This genus differs from *Eucoila* West., and *Hexaplasta* Först., in having the fourth and fifth antennal joints in ♀ very small, the six about as long as third, but stouter, and joints seventh to thirteenth enlarged, moniliform, slightly peduncled and striate. The wings are ciliate, and the pubescent abdominal girdle is nearly obsolete. In the male the third joint of antennæ is longest, narrowed at base, and the following joints are about thrice as long as wide, the terminal joints being a little longer than the preceding one.

45. **Dimicrostrophis ruficornis** Ashm. (Prov. Add. Faun. Hym. 173) —♀. Length .08 inch. Black, smooth and highly polished. Antennæ 13-jointed, pubescent, dark red, first joint stout, obconic; second small, globular; third not quite twice as long as second, much more slender and narrowed at base, fourth and fifth joints very small, hardly half the length of third, following

enlarged, moniliform. Thorax smooth, without grooves, not compressed at sides and elevated as in *Eucoila*. Scutellum not greatly elevated, cupuliform, black; pleuræ smooth, polished; metathorax pubescent; legs yellowish, contrasting greatly with the red antennæ. Abdomen ovate, compressed, polished, black. Wings hyaline, pubescent, ciliate, marginal cell closed.

Hab.—Cap Rouge, Canada (Abbe Provancher).

46. **Dimicrostrophis xystiformis** n. sp.—♂. Length .04 inch. Black, polished. Antennæ dark red, legs paler red. Antennæ 15-jointed, filiform, much longer than body, third joint slightly longer than others and slightly bent, following about thrice as long as wide, last joint slightly lengthened; cup of scutellum very small; pleuræ smooth, polished. Legs: femora obfuscated above near base. Abdomen black. Wings hyaline, pubescent and ciliate, marginal cell triangular.

Hab.—Florida.

MACROCEREUCOILA n. g.

This genus is founded on the male alone, the female still being unknown, but is easily recognized by its long *sixteen-jointed antennæ*, about twice as long as the whole insect; the third joint is much shorter than fourth, while the following joints are four times or more than four times as long as wide; the scutellar cup is very high, deeply excavated, with the margins sharp and slightly deflexed. The apical tibial spur on anterior legs is very long, curved, and there is a distinct cubital nervure extending from the obsolete areolet to near the apical margin of wing; meso- and metapleuræ smooth, polished.

No ♂ *parasitic cynips* has been described with more than 14–15-jointed antennæ, and while not uncommon among the gall-making cynips, the 16-jointed antennæ makes the following species a unique among the *Figites*:

47. **Macrocereucoila longicornis** n. sp.—♂. Length .10 inch. Black, polished; the sixteen-jointed antennæ and legs including coxæ; red. Wings hyaline, pubescent, veins reddish, radial area large, closed; cubital cell partly closed, no areolet.

EUCOILA Westwood.

48. **Eucoila rubripes** n. sp.—♂. Length .10 inch. Similar to the above but with only fifteen joints in the antennæ and the wing veins not reddish but pale, and the cubital nervure is not at all developed.

Described from two specimens.

COTHONASPIS Hartig.

In this genus should be placed *Kleidotoma vagabunda* Ashm.

EUCOILIDEA n. g.

This genus is at once distinguished from all other genera in the *Eucoilinae* by two parapsidal grooves on mesothorax, which converge and meet at about two-thirds their length posteriorly, thence to base of the scutellum as a delicate carina.

The cup of scutellum is very large, elliptical, greatly elevated above a line with the mesothorax, and separated from it by a transverse arcuate groove; its upper surface flat, but slightly pressed in on the disk. Wings as in *Eucoila*. The antennæ in ♂ is 15-jointed and very distinct from all others in the genera of the *Eucoilinae* in that the third joint is twice as long as the fourth, strongly curved and excised, the following joints are about equal in length, a little more than twice as long as wide or long moniliform, the terminal joint being slightly smaller than the preceding one. Abdomen as in *Eucoila*, but annulus at base without pubescence. Two species in our fauna has been discovered as follows:

49. **Eucoilidea longicornis** n. sp.—♂. Length .07 inch. Black, polished; antennæ red, longer than body; legs, excepting femora at tips, honey-yellow, femora black; wings hyaline, pubescent; veins pale.

Described from one specimen captured at large.

50. **Eucoilidea canadensis** n. sp.—♀. Length .09 inch. Differs from *longicornis* principally in having all the legs dark red and the veins in the wings yellowish.

Hab.—Canada (Abbe Provancher).

Subfamily FIGITINÆ.

THYREOCERA n. g.

This genus is allied to *Figites* and *Eucoila*, and is founded upon one ♀ specimen. The antennæ are 13-jointed as in *Figites* and *Eucoila*; the thorax smooth, with two parapsidal grooves; the scutellum differs from those of other genera in being smooth, polished and having a *small erect club on its disk posteriorly near the tip*, bifoveate at base. The abdomen is compressed, somewhat similar to *Melanips* Haliday, in shape, all the segments being visible, but differs in that the third joint is much longer than the second and is not ornate at base, without either a pubescent girdle or a striate annulus; the petiole is short, stout, striate. The wings have a long, triangular, closed marginal cell, and the marginal nervure and second transverse cross each other, forming a triangular areolet.

This genus seems to form a connecting link between *Figites* and *Eucoila*, the erect club on the posterior part of its scutellum, which easily separates it from all other genera, being evidently analogous to the cup in *Eucoila*.

51. **Thyreocera nigrifemora** n. sp.—♀. Length .10 inch. Black, smooth and polished, very slightly pubescent; antennæ and legs dull honey-yellow, two basal joints in antennæ and femora, excepting tips, black. Abdomen ovate, compressed, somewhat pointed, ventral valve projects slightly beyond the upper terminal segment and the ovipositor is slightly exserted. Wings hyaline, pubescent; veins brown.

Hab.—Canada (Abbe Provancher). Described from one specimen.

OMALASPIS Giraud.

52. **Omalaspis floridanus** n. sp.—♂. Length .12 inch. Head nearly smooth, a pit at the base of each antenna; antennæ red, 14-jointed, filiform; joints long oval, first joint stout, black, polished, second round, third slightly longer than fourth, excised slightly, exteriorly; terminal joint the longest joint. Mesothorax polished, with two grooves; prothorax striate at sides, pleuræ smooth, the mesopleuræ faintly longitudinally striate, scutellum smooth, elongate, truncate posteriorly, bifoveate at base, there is a slight groove at lateral margins; legs red. Abdomen ovate, slightly compressed, petiole very short, striate. Wings hyaline; veins yellowish.

Described from two specimens captured at large.

FIGITES Latreille.

53. **Figites floridanus** n. sp.—♀. Length .15 inch. Black and shining, with some sparse pubescence on head and thorax. Head rugoso-punctate, subopaque; eyes oval, sparsely pubescent; antennæ red, basal joint black, polished, longest, clavate, second small, globular, third about one-third longer than fourth, from fifth joint moniliform. Thorax above smooth, polished, with two distinct grooves; prothorax and pleuræ striate; scutellum rugose with two large, deep foveæ, tip obtuse. Legs honey-yellow all coxæ black, femora above in middle, more or less obfuscated. Abdomen long ovate, compressed, pointed at tip, and a striate annulus at base; petiole short, stout; second abdominal segment striate at base, third occupying nearly all the rest of the abdomen; the ovipositor is exserted, and the ventral valve extends a little in advance of the last dorsal segment. Wings hyaline; veins pale brown.

SOLENASPIS n. g.

The full characters of this genus given in the "Table of Genera" will easily distinguish it.

54. **Solenaspis hyalinipennis** n. sp.—♀. Length .13 inch. Black, polished. Head rugose, striate in front; antennæ and legs red. Thorax smooth, with two grooves, a short deep groove or an elongate fovea at posterior margin between the parapsidal grooves; prothorax coarsely striate; mesopleuræ very

finely striate; scutellum with two deep foveæ at base, separated only by a slight carina, a deep median groove extends from them and slightly up the spine. Wings hyaline, free from pubescence, the veins so delicate and pale as to be only visible when seen through transmitted light, the anterior wings are broad and the marginal cell is broad.

Described from one specimen taken at large.

ASPICERA Dahlbom.

55. **Aspicera albihirta** n. sp.—♀. Length .14 inch. Black, scabrous, shining. Head rugose or carinated, a prominent carina extends from base of each antennæ, along the anterior orbits of eyes: ocelli prominent, with a depression or fovea behind and then transversely carinated; a depression at base of antennæ: the face and cheeks covered with dense white pile; antennæ short, 13-jointed, filiform, brownish yellow; first two joints black, others elongate, third slightly shorter than fourth, about equal with fifth, others subequal, the terminal one being very long and the longest joint. Thorax transversely rugose and carinated, parapsides distinct, converging behind, bordered by a carina, a median carina between separated by two carina before reaching base of scutellum, thence as a deep groove; anteriorly there are two short, oblique carina, ending abruptly before reaching the middle carina; a deep longitudinal groove at base of wings; prothorax large, hind margin emarginate with two oblique carina of the mesothorax, sides hairy, mesopleuræ alone being smooth and polished; scutellum large, quadrate, ending in a long spine, two deep approximate foveæ at base, separated by a narrow carina, the surface reticulately rugose; metathorax covered with dense white pile. Legs brownish yellow, tibiæ sparsely pubescent, posterior tibiæ longitudinally carinate on inner side, the basal joint of posterior tarsi is cylindrical, stout, as long as all the others combined. Abdomen ovate, black, polished, but only slightly compressed, with a striate girdle at base. Wings hyaline, veins pale, slightly yellowish, the marginal cell open, the submarginal and marginal vein not being prolonged to the marginal edge.

Described from one specimen taken while in the act of depositing an egg in a dipterous gall.

56. **Aspicera similis** n. sp.—♀. Length .10 inch. Sculptured as in *Aspicera albihirta*, but differs as follows: size much smaller, antennæ and legs of a more decided yellow, first two antennal joints not black, third joint is as long as fourth, the terminal joint being two and a half times longer than the preceding joint and brownish; the pubescence while similar is not so dense; the thorax is smooth, for while the sculpture is very much the same it is not so transversely rugulose; the scutellum, too, while ending in a long spine is not reticulately rugose or carinated, there being three longitudinal carina, a central one extending up the spine, and two lateral ones; finally, the veins in the wings are so pale as to be hardly perceptible.

Described from two specimens captured at large.

ONYCHIA Haliday.

This genus is the same as *Callaspidia* Dahlbom.

57. **Onychia Provancheri** Ashm. (*Callaspidia*, Prov. Add. Faun. Hym. 167)—♀. Length .18 inch. Head and thorax black, opaque, transversely rugulose. Head with very coarse, transverse rugosities, covered with a whitish pubescence on face, cheeks and surrounding mouth parts; a pit in front of each lateral ocelli; eyes long oval, brown; antennæ 13-jointed, filiform, rufous; third and terminal joints longest, about equal in length, first obconic, second globular, both black, the third at base is also more or less black; thorax transversely rugoso-punctate, parapsidal grooves distinct, with a median carina; prothorax appearing as a carina at sides, scutellum rufous, very large, elevated posteriorly and extending slightly over the metathorax with two broad, deep, longitudinal channels its whole length, the bottom of which are covered with transverse rugosities; metathorax at sides and coxæ pubescent. Legs rufous, femora along upper edges obfuscated; the posterior tibiæ have two apical spines, a broad longitudinal groove beneath and one not so broad above; the basal tarsal joint is cylindrical and as long as all the others combined. Wings hyaline, with an open marginal cell.

Hab.—Cap Rouge, Canada.

This species was sent to me by Abbe Provancher, in honor of whom I take pleasure in dedicating the species.

It seems very closely related to the European *Onychia* (*Callaspidia*) *Dufouri* Giraud, but I cannot but think it a distinct species.

ACOTHYREUS n. g.

This genus is founded upon one ♂ specimen captured at large some years ago. It is closely related to *Anacharis* Dalman, by its long petiolated abdomen, but easily separated by its much higher cone-shaped, rugose, non-foveate scutellum and a gradually declining rugose metathorax; the antennæ are long, the joints closely connately united, 14-jointed; the mesopleuræ are polished, divided by a longitudinal groove; the abdomen is ovate, not compressed and obtusely rounded at apex, in *Anacharis* it is pointed; the petiole is very long and smooth; the marginal cell is closed triangular, the areolet a callous dot; no other cells.

The thorax, head and antennæ in this genus resembles *Amblynotus* somewhat, but the long petiole of abdomen and venation of wings easily separate it.

58. **Acothyreus osceola** n. sp.—♂.—Length .13 inch. Black, shining; antennæ and legs yellowish. Head subquadrate, finely punctate; occiput smooth, face rather densely covered with whitish pubescence, ocelli prominent, almost on a straight line, the front one being but slightly in advance of the others; antennæ 14-jointed, very long, first joint black; thorax irregularly rugose above

and at sides two distinct parapsidal grooves; mesopleuræ smooth, polished; scutellum conic, very rugose; metathorax scabrous. Abdomen ovate, not compressed nor ornate, the petiole very long, slender, smooth; the second and third abdominal segments are about equal. Legs yellowish, all coxæ black. Wings hyaline, veins brownish, the marginal cell large, closed, the marginal vein being straight and stouter towards apex.

Described from one specimen captured at large.

ANACHARIS Dalman.

59. **Anacharis melanoneura** n. sp.—♂. Length .10 inch. Stature of *Anacharis eucharoides* Dalm. Black, shining; antennæ 14-jointed, brownish yellow, first two joints black. Legs brownish yellow, coxæ black, femora with a dusky streak or blotch above. Wings hyaline, veins yellowish, the costal and marginal vein black.

Described from one specimen taken in March.

MELANIPS Haliday.

60. **Melanips lowensis** n. sp.—♀. Length .10 inch. Black, shining. Head as broad as thorax, microscopically punctate; antennæ 13-jointed, filiform, reaching to tip of mesothorax, dull yellowish brown, first two joints black, terminal joint dark; thorax with surface finely punctate, subopaque, parapsidal grooves very delicate; mesopleuræ smooth, polished; scutellum finely rugose; metathorax pubescent. Legs brownish yellow, femora and tibiæ obfuscated, coxæ black. Abdomen slightly longer than head and thorax combined, compressed, ovate, smooth, black and shining, a hairy girdle at base, all segments visible, second and third nearly equal, others short, slightly subequal, excepting the seventh, which is prolonged, triangular. Wings hyaline, marginal cell large, triangular.

♂. Length .06 inch. Head and thorax smoother than in ♀, antennæ 14-jointed, paler than in ♀, the three terminal joints dusky. Abdomen short, oval, not compressed, and not as long as thorax; otherwise as in the female.

Hab.—Keota, Iowa. Described from five specimens (2♂, 3♀) kindly sent me by Mr. A. S. Van Winkle.

LONCHIDIA Thomson.

L. Abbe Prévancher, in "Le Naturaliste Canadien" has recently described a species in this genus, *Lonchidia hirta*, which should have been credited to us, the species having been identified for him under that name, while MS of same was in the hands of the American Entomological Society. We have, consequently, been compelled to suppress our description.